UCRL-JC-121559 Abs

37th Annual Meeting. APS Division of Plasma Physics 6-10 November 1995, Louisville, KY Abstract Submittal Form

Deadline: Friday, 7 July 1995

Subject Classification Catagory 1.10 Dense Plasmas [X] Theory [ ] Experiment

(refer to the DPP Catagory list in APS Meeting News)

Absorption Spectroscopy of Aluminum near the K-edge under Multi-Mbar Compression*, C. A. Iglesias, R. Cauble, P. Celliers, L. B. Da Silva, F. J. Rogers, and N. C. Woolsey, *Lawrence Livermore National Laboratory, Livermore, CA* and A. Ng, *University of British Columbia, Vancouver, BC* – Although it is possible to uniformly compress matter to several times solid density by using a laser to shock the material, measurements of the radiative properties of the material are difficult. However, such measurements are important since the theory is uncertain in this regime. We have developed a model of photoabsorption cross sections which includes continuum lowering, electric field fluctuations, and degeneracy effects and applied it to compressed aluminum near the K-shell photoionization threshold. The results show good agreement with experimental data where the density and temperature of the sample are known from the aluminum EOS. By benchmarking our model with such data, this method may allow the evaluation of temperature of shock-compressed materials with unknown EOSs.

** Work performed under the auspices of the U. S. Department of Energy by LLNL under contract number W-7405-ENG-48*

[ ] Prefer Poster Session

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[ ] Place in the following grouping :
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Submitted by:

(Signature of APS Member)

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A faxed copy is NOT acceptable. This form, or a computer-generated form, plus TWO COPIES must be received by **Friday, 7 July 1995** at the following address:

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